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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/502,428	07/23/2004	Jochen Fuhrer	PC10334US	8132

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VALLEY FORGE, PA 19482-0980

EXAMINER

WILLIAMS, THOMAS J

ART UNIT

PAPER NUMBER

3683

DATE MAILED: 03/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/502,428	Applicant(s) FUHRER ET AL.	
	Examiner Thomas J. Williams	Art Unit 3683	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-19 is/are rejected.
- 7) ☒ Claim(s) 20 and 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 19, 2006 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 10-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,231,134 to Fukasawa et al. in view of US 6,709,075 to Crombez et al.

Re-claim 10, Fukasawa et al. teach a method for controlling a regenerative and anti-lock brake system, comprising the step of: identifying the termination of the ABS control phase

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(column 36 lines 65-67, thus allowing for the operation of the regenerative brakes); determining a criteria representative of a braking demand (interpreted as the desired braking torque requested by the operator, see column 17 lines 56-67 to column 18 lines 1-31) and an instantaneous coefficient of friction at the determination of the ABS control phase (Fukasawa et al. disclose in column 38 lines 8-44 a friction coefficient of the road surface is determined prior to re-entry into the regenerative braking phase, the value is compared to a predetermined value, this indicates an instantaneous calculation of the coefficient of friction is carried out); applying post ABS regenerative braking by the regenerative brake system at the termination of the ABS control phase.

However, Fukasawa et al. fail to specifically teach a value of the post ABS regenerative braking system based on the determined criteria, or more specifically the instantaneous coefficient of friction.

Crombez et al. teach the step of determining the coefficient of friction when having to control a regenerative brake system and adjusting the magnitude of the regenerative brake in accordance with the coefficient of friction. This step is intended to improve the braking performance of the regenerative brake, by being responsive to current road situations, and in particular a current coefficient of friction. It would have been obvious to one of ordinary skill in the art to have provided the apparatus of Fukasawa et al. the capability of applying a value of the post ABS regenerative braking based upon the determined criteria (in particular the coefficient of friction) as compared to a regenerative brake value prior to entry into the ABS control phase as taught by Crombez et al., thus improving the overall stability of the vehicle upon re-entry into the regenerative braking phase from a post ABS control phase.

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Re-claim 11, the regenerative brake provides the demanded brake power to a maximum value, corresponding to a friction coefficient of the road surface, upon which the conventional brake system assumes control.

Re-claims 12 and 14-16, a time delay period exists during transition from the ABS to the regenerative control phase, Fukasawa et al. teach a blended brake system in which the regenerative braking is limited to a predetermined value varied in dependence on the prevailing brake pressure in the wheel, any braking demand in excess of the regenerative braking will be generated by the conventional brake system.

Re-claim 13, Fukasawa et al. as modified fail to teach the specifics of the predetermined time period. It is the opinion of the examiner that the time period in Fukasawa et al. would have a specified length. It would have been obvious to one of ordinary as a matter of design choice to have provided the system of Fukasawa et al. with a predetermined time period between 1 and 3 seconds, since applicant has not disclosed that having the time period within the specified parameters solves any specific problem or is for any particular purpose and it appears that the system of Fukasawa et al. would have performed equally well within the recited time period.

Re-claim 17, the regenerative brake system is active on the drive wheels, see figure 1.

Re-claims 18 and 19, as stated above transition into regenerative braking phases is prevented when in an ABS control phase.

Allowable Subject Matter

5. Claims 20 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments filed January 19, 2006 have been fully considered but they are not persuasive. As stated above it is the opinion of the examiner that Fukasawa et al. do in fact teach a method step of determining criteria representative of a braking demand and an instantaneous coefficient of friction. As stated earlier the examiner is interpreting the brake demand as being the braking torque requested by the operator. Furthermore, the examiner believes that an instantaneous coefficient of friction is determined in Fukasawa et al. since knowing the value of the coefficient of friction is necessary to carry out the operations as taught in Fukasawa et al. As understood by the examiner the claimed invention merely recites a method of re-entry into the regenerative braking phase from an ABS control phase, wherein the regenerative braking value is dependent upon the braking demand and current coefficient of friction. It is the opinion of the examiner that any regenerative braking value will be based upon a braking demand. As such Fukasawa et al. merely lacks teaching the adjustment of the regenerative braking value in accordance with the coefficient of friction, which stated earlier is determined by Fukasawa et al. Therefore, the examiner relies upon Crombez et al. for teaching the step of adjusting the regenerative braking value to the current coefficient of friction. This combination would improve the overall stability of the vehicle upon re-entry into the regenerative control phase.

Conclusion

7. Any inquiries concerning this communication or earlier communications from the examiner should be directed to Thomas Williams whose telephone number is 571-272-7128. The examiner can normally be reached on Monday-Thursday from 6:30 AM to 4:00 PM. The examiner can also be reached on alternate Fridays.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James McClellan, can be reached at 571-272-6786. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-6584.

TJW

March 7, 2006

THOMAS J. WILLIAMS
PRIMARY EXAMINER

Thomas Williams

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3-7-06